CLAIMS:

1. Method for transferring data from a first switch to a second switch which are part of a line-switching network or have access to a line-switching network, selectively by line-switching or packet-switching, consisting of the following steps:

   a) establishing a connection through the line-switching network from a first switch to an access point of a packet-switching network;

   b) line-switching transfer of data from the first switch to the access point of the packet-switching network;

   c) packeting of the data if this does not yet exist as data packets, and packet-switching transfer of the data packets through the packet-switching network from access point to the second switch;

   d) repeated checks whether a control signal exists for establishing a line-switching connection with the second switch;

   e) establishing a line-switching connection from first switch to second switch through the line-switching network with the presence of a corresponding control signal;

   f) changing to a line-switching data transfer and transferring data to the second switch.

2. Method for transferring data from a first switch to a second switch which are both part of a line-switching network and a packet-switching network and have access to such network, selectively through line-switching or through packet-switching, consisting of the followings steps:

   a) packeting the data in the first switch if the data does not yet exist as data packets;

   b) packet-switching transfer of data packets through the packet-switching network to the second switch;

   c) repeated checking whether a control signal exists

for establishing a line-switching connection with the second switch;

   d) establishing a line-switching connection through the line-switching network to the second switch with the presence of a corresponding control signal;

   f) change to a line-switching data transfer and transferring data to the second switch.

3. Method according to claim 1 or 2 wherein the data packets after changing to a line-switching data transfer remain as data packets and are transferred as such by line-switching.

4. Method according to claim 1 or 2 wherein the data packets after changing to a line-switching data transfer are unpacketed, more particularly the headers of the data packets are removed.

5. Method according to at least one of claims 1 , 3 or 4 wherein the same data channel is used to send the data packets to the access point to the packet-switching network and to transfer the data through the line-switching network to the second switch.

6. Method according to at least one of claims 1, 3 or 4 wherein the data packets are transferred to the access point ·to the packet-switching network through a first data channel and the data are transferred for line-switching to the second switch through a second data channel.

7. Method according to at least one of the preceding claims wherein the line-switching network represents an ISDN network with ISDN switches, the data packets have the format TCP/IP and the data channels used for line-switching data transfer represent ISDN B channels.

8. Method according to at lest one of the preceding claims wherein the control signal which releases a change between the line-switching and packet-switching transfer on

5   understepping or exceeding certain demands on the quality of the data transfer such as time delay or noise proportion, is produced automatically or as a result of a command of a network management system or an end appliance.

10   9. Method according to at least one of the preceding claims wherein with a line-switching data transfer between the first switch and the second switch or between the first switch and the access point to the packet-switching network the data of several users are multiplexed on one data

15   channel by forming sub-channels of fixed band width.

10. Method according to claim 9 wherein the data of one user after its selection are transferred line-switched with a transfer rate which corresponds to a fraction of the

20   transfer rate of the band width which is available as standard to the user.

11. Method according to claim 9 or 10 wherein the line-switched network is as ISDN network and the data of one user

25   to be transferred are transferred between the switches or one switch and the access point to the packet-switching network on one data channel with a band width which corresponds to a fraction of the band width of 64 kbit/s which is available as standard, more particularly 32, 16, 8,

30   4, 2 or 1 kbit/s.

12. Method according to claim 11 wherein in the switch only each nth byte or each nth bit of an ISDN frame is copied over and forwarded on the switched-through data channel to the

35   next switch or to an access point to the packet-switching

network whereby the band width of the transfer is 64 kbit/s /n.

13. Method according to at least one of the preceding
5 claims wherein with a change over from a packet-switching transfer to a line-switching transfer
     a) the address information of the data packets are evaluated and classified according to network topology;
     b) for the data packets whose destination addresses
10 relate to the same topological area of the network a switch is selected which is located in this area;
     c) a line-switching connection (bypass) is established with the selected switch and
     d) the corresponding data or data packets are
15 transferred line-switched to the switch.

14. Method according to claim 13 characterised in that to classify the data packets according to network topology the destination addresses of the data packets are sorted
20 according to geographical areas whereby for data packets whose destination addresses relate to the same geographical area a switch is selected which is located in this geographical area and a line-switching connection is established with this switch.
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15. Method according to claim 14 characterised in that for classifying the data packets according to geography the destination addresses are compared with destination addresses stored in a data bank whereby the data band
30 contains a link between the destination addresses and the associated geographic situation.

16. Switch for use in a method according to claims 1 or 2 with
35   a) at least one packeting device (713, 714) for

packeting and unpacketing data;

b) an IP switching device (72) for routing data packets;

c) a line switching device (73) for establishing connections and switching through data channels;

d) a control device (71) which directs incoming data either to the IP switching device (72) or to the line switching device (73) in dependence on control signals.

17. Switch according to claim 16 which has furthermore a topology data bank (75) which contains associations between destination addresses of data packets and associated geographical origin.

18. Switch according to claim 16 or 17 which contains furthermore a multiplexer (732) which with the presence of a corresponding control command multiplexes several data streams so that only each n-th bit and/or each n-th byte is used in the outgoing data channel.

19. Switch according to claim 18 wherein different input data streams occupy different sized proportions in the outgoing data channel.

20. Switch according to one of claims 16 to 19 which has in addition a device (721) for compressing and decompressing data.